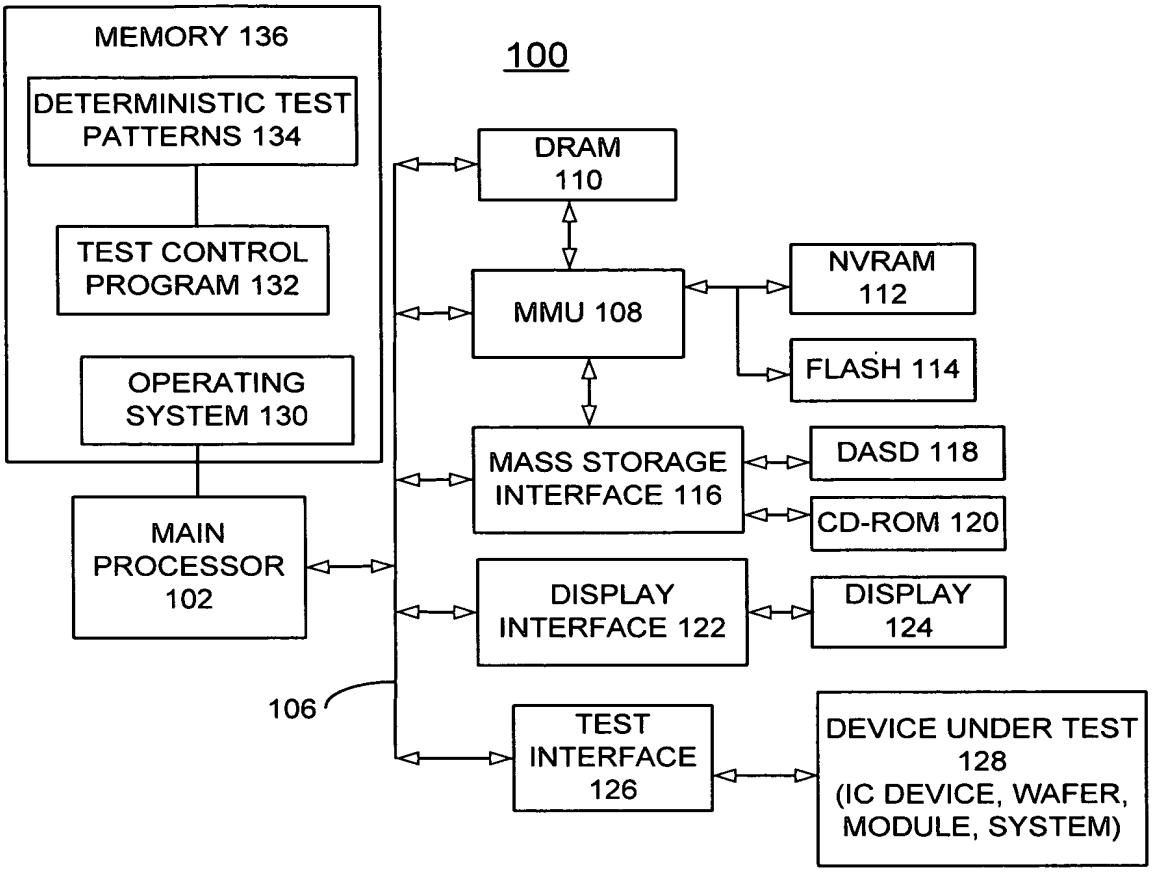

MEMORY 136
DETERMINISTIC TEST PATTERNS 134
TEST CONTROL PROGRAM 132
OPERATING SYSTEM 130
MAIN PROCESSOR 102
100
DRAM 110
MMU 108
NVRAM 112
FLASH 114
MASS STORAGE INTERFACE 116
DASD 118
CD-ROM 120
DISPLAY INTERFACE 122
DISPLAY 124
106
TEST INTERFACE 126
DEVICE UNDER TEST 128 (IC DEVICE, WAFER, MODULE, SYSTEM)

FIG. 1

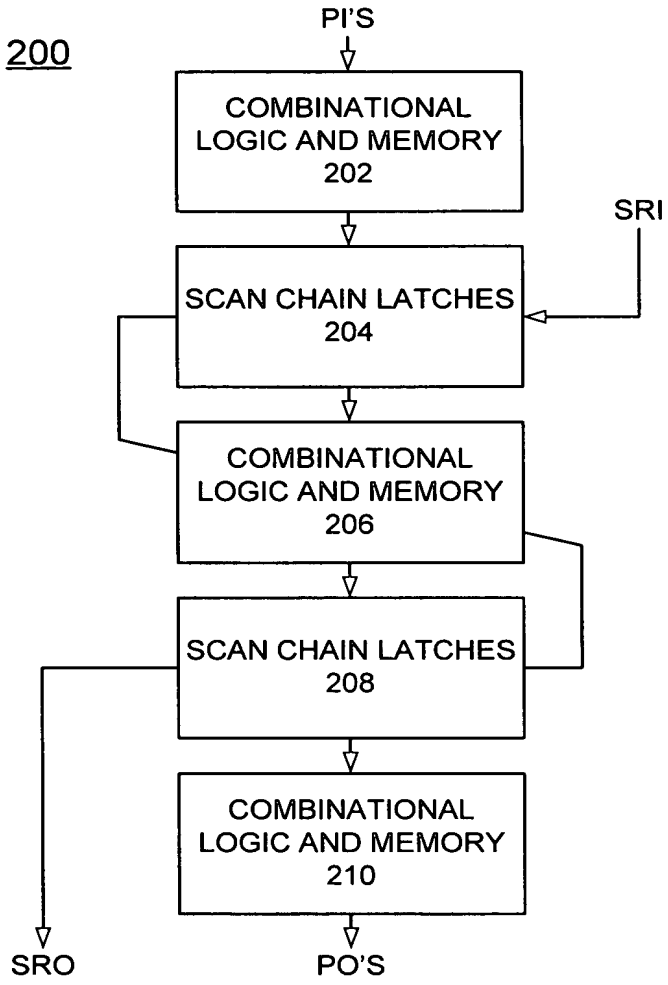

200
PI'S
COMBINATIONAL LOGIC AND MEMORY 202
SRI
SCAN CHAIN LATCHES 204
COMBINATIONAL LOGIC AND MEMORY 206
SCAN CHAIN LATCHES 208
COMBINATIONAL LOGIC AND MEMORY 210
SRO
PO'S

FIG. 2

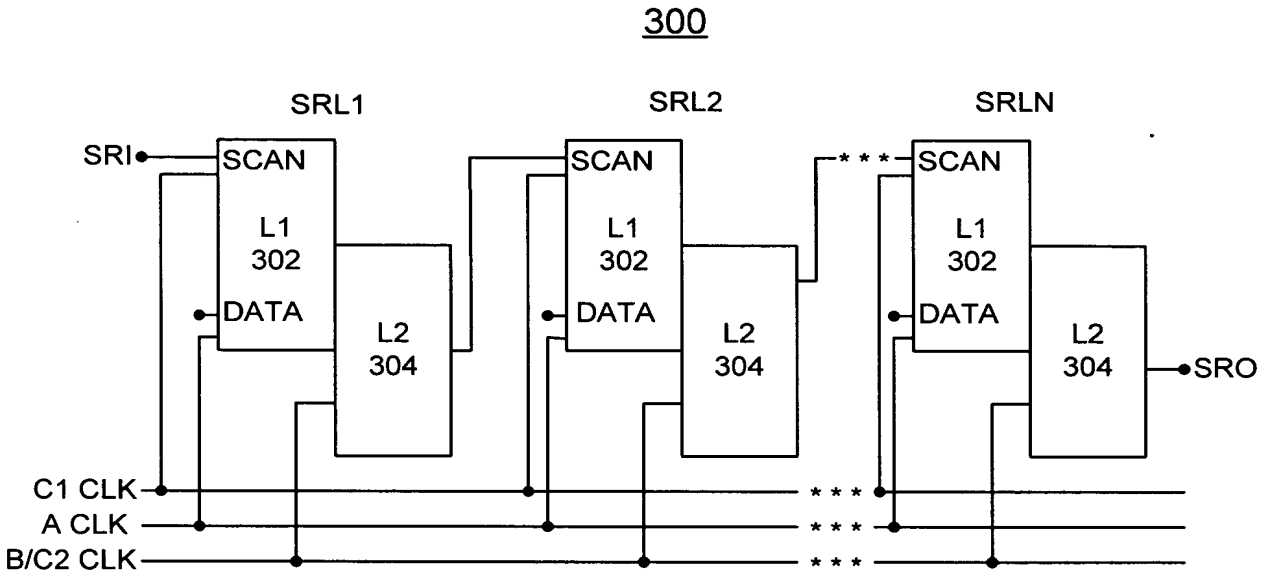

300
SRL1
SRL2
SRLN
SRI
SCAN
L1
302
DATA
L2
304
SRO
C1 CLK
A CLK
B/C2 CLK

FIG. 3

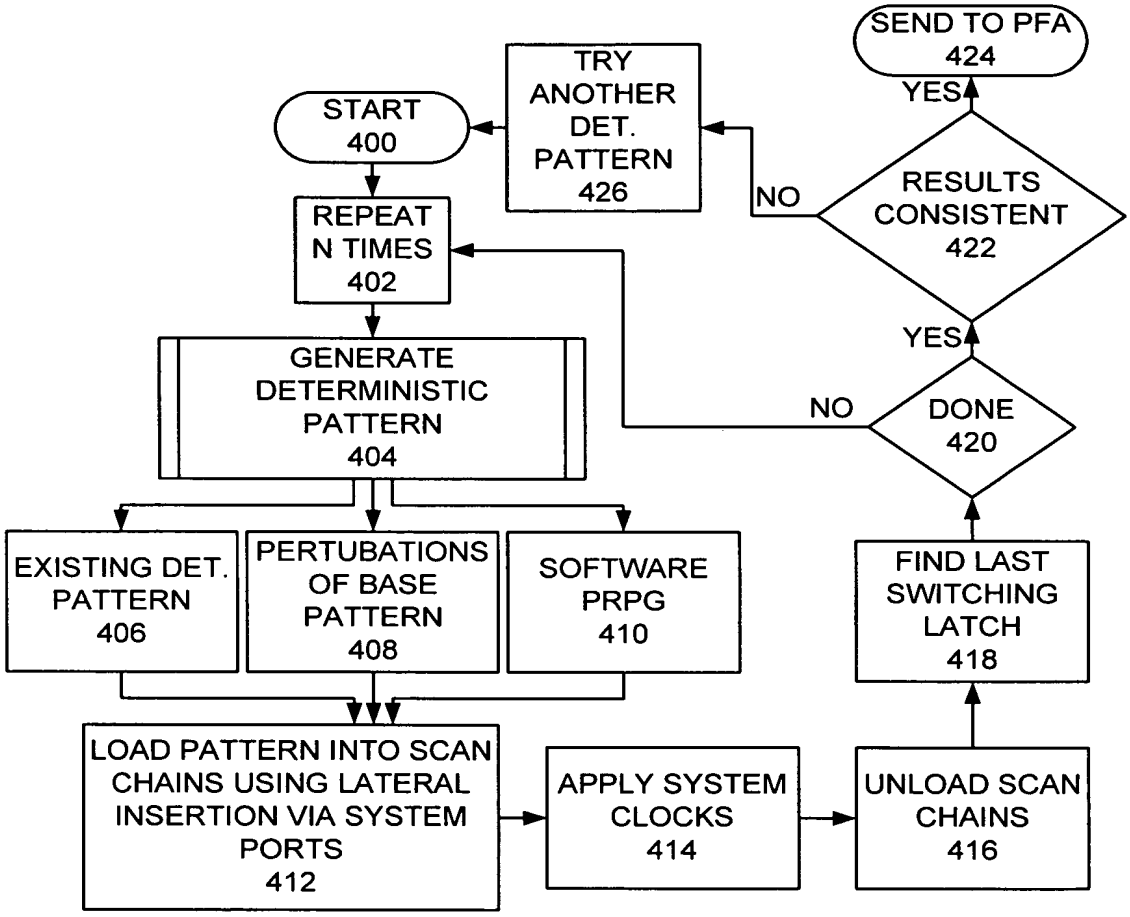

START
400
REPEAT
N TIMES
402
GENERATE
DETERMINISTIC
PATTERN
404
EXISTING DET.
PATTERN
406
PERTUBATIONS
OF BASE
PATTERN
408
SOFTWARE
PRPG
410
LOAD PATTERN INTO SCAN
CHAINS USING LATERAL
INSERTION VIA SYSTEM
PORTS
412
APPLY SYSTEM
CLOCKS
414
UNLOAD SCAN
CHAINS
416
FIND LAST
SWITCHING
LATCH
418
DONE
420
NO
YES
RESULTS
CONSISTENT
422
NO
YES
TRY
ANOTHER
DET.
PATTERN
426
SEND TO PFA
424

FIG. 4

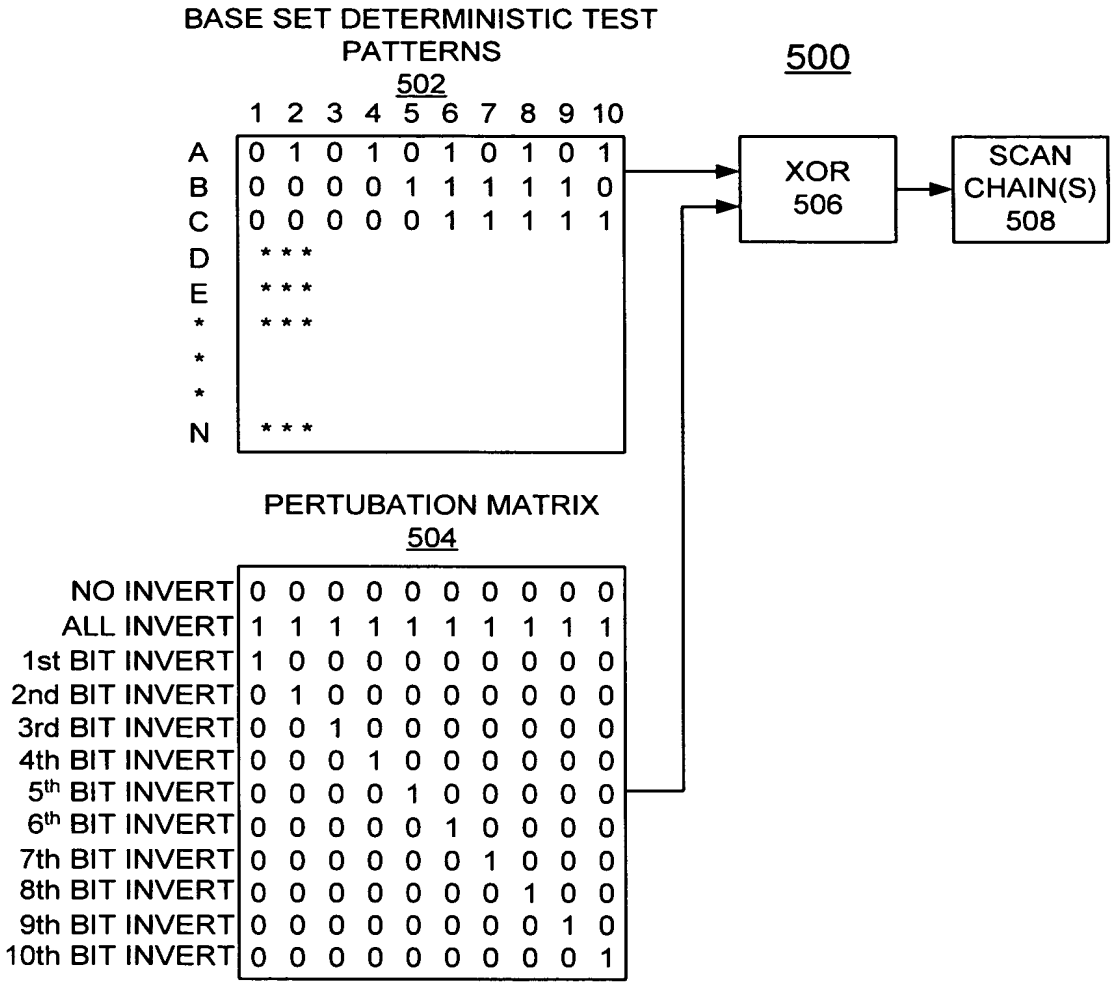

BASE SET DETERMINISTIC TEST PATTERNS
502
500
1 2 3 4 5 6 7 8 9 10
A 0 1 0 1 0 1 0 1 0 1
B 0 0 0 0 1 1 1 1 1 0
C 0 0 0 0 0 1 1 1 1 1
D * * *
E * * *
* * * *
*
*
N * * *
XOR 506
SCAN CHAIN(S) 508
PERTUBATION MATRIX
504
NO INVERT 0 0 0 0 0 0 0 0 0 0
ALL INVERT 1 1 1 1 1 1 1 1 1 1
1st BIT INVERT 1 0 0 0 0 0 0 0 0 0
2nd BIT INVERT 0 1 0 0 0 0 0 0 0 0
3rd BIT INVERT 0 0 1 0 0 0 0 0 0 0
4th BIT INVERT 0 0 0 1 0 0 0 0 0 0
5th BIT INVERT 0 0 0 0 1 0 0 0 0 0
6th BIT INVERT 0 0 0 0 0 1 0 0 0 0
7th BIT INVERT 0 0 0 0 0 0 1 0 0 0
8th BIT INVERT 0 0 0 0 0 0 0 1 0 0
9th BIT INVERT 0 0 0 0 0 0 0 0 1 0
10th BIT INVERT 0 0 0 0 0 0 0 0 0 1

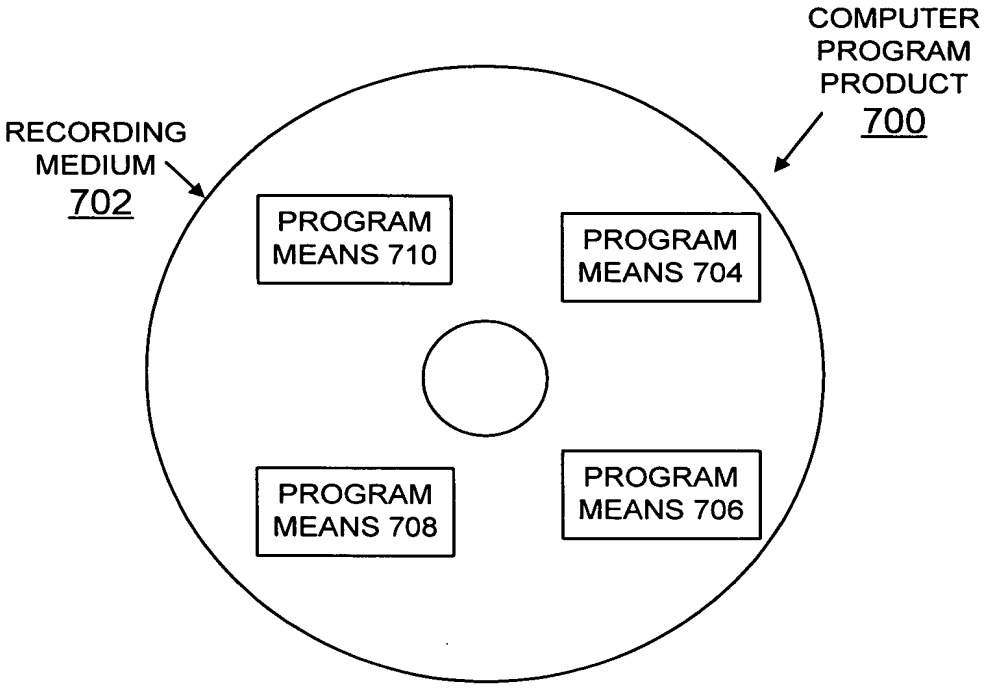
FIG. 5

600

1st PATTERN	0	0	0	0	0	1	1	1	1	1
2nd PATTERN	1	1	1	1	1	0	0	0	0	0
3rd PATTERN	0	0	0	0	0	1	1	1	1	0
4th PATTERN	0	0	0	0	0	1	1	1	0	1
5th PATTERN	0	0	0	0	0	1	1	0	1	1
6th PATTERN	0	0	0	0	0	1	0	1	1	1
7th PATTERN	0	0	0	0	0	0	1	1	1	1
8th PATTERN	0	0	0	0	1	1	1	1	1	1
9th PATTERN	0	0	0	1	0	1	1	1	1	1
10th PATTERN	0	0	1	0	0	1	1	1	1	1
11th PATTERN	0	1	0	0	0	1	1	1	1	1
12th PATTERN	1	0	0	0	0	1	1	1	1	1

FIG. 6

FIG. 7


COMPUTER PROGRAM PRODUCT
700
RECORDING MEDIUM
702
PROGRAM MEANS 710
PROGRAM MEANS 704
PROGRAM MEANS 708
PROGRAM MEANS 706